National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

V5 Validation Status

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AIRS Product	Product	Accuracy (V5)	Val Status (V5)
Core: Radiances			
AIRS IR Radiance	L1B-AIRS	<0.2K	Stage 3
AIRS VIS/NIR Radiance	L1B-VIS	15-20%	Stage 1
AMSU Radiance	L1B-AMSU	1-3 K	Stage 3
HSB Radiance	L1B-HSB	1-3 K	Stage 3
Core: Geophysical			
Cloud Cleared IR Radiance	L2	1.0 K	Stage 2
Sea Surface Temperature	L2	1.0 K	Stage 2
Land Surface Temperature	L2	2-3 K	Stage 1
Temperature Profile	L2	1 K / km	Stage 3
Water Vapor Profile	L2	15% / 2km	Stage 3
Total Precipitable Water	L2	5%	Stage 3
Fractional Cloud Cover	L2	20%	Stage 2
Cloud Top Height	L2	1 km	Stage 2
Cloud Top Temperature	L2	2.0 K	Stage 2
Carbon Monoxide	L2	15%	Stage 2
Carbon Dioxide	Post-Proc	1-2 ppm	Stage 1
Core: Necessary*			
Total Ozone Column	L2	5%	Stage 2
Ozone Profile	L2	20%	Stage 2
Land Surface Emissivity	L2	10%	Stage 1
IR Dust	L1B-Flag	0.5 K	Stage 1
Research Products			
Methane	L2	2%	Stage 1
OLR	L2-Support	5 W/m2	Stage 1
HNO3	L1B-Post	0.2 DU	Stage 1
Sulfur Dioxide	L1B-Flag	1 DU	Stage 1

*Necessary Products are required to retrieve accurate temperature profiles (1K/km) in all conditions

Validation Status Definitions (Common to all Aqua Instruments)

Stage 1: Validation Product accuracy has been estimated using a small number of independent measurements obtained from selected locations and time periods and ground-truth/field program effort.

Stage 2: Validation Product accuracy has been assessed over a widely distributed set of locations and time periods via several ground-truth and validation efforts.

Stage 3: Validation Product accuracy has been assessed, and the uncertainties in the product well-established via independent measurements made in a systematic and statistically robust way that represents global conditions.

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What's New?

- **We are preparing a data base of radiosondes**
  - ***Mentioned by Bill Irion in his testing talk.***
- **We have a large number of matched GPS soundings**
  - ***Baijun Tian will show tropopause height comparisons.***
- **Glynn Hulley and Simon Hook have validated AIRS emissivity over sandy regions in southern Africa.**
  - ***Manuscript in prep.***

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Radiosonde Data Base

- **Create an atlas of all dedicated radiosondes in common format, including graphics by site.**
  - ***Bill Irion is analyzing them for T and q; see his talk.***
- **Add operational sondes as appropriate.**
  - ***Kevin Yau is creating translators from HDF & BUFR, analyzing content.***
- **Why?**
  - ***V6 testing***
    - To supplement ECMWF comparisons.
  - ***Validation by site***
    - See Bill's results.
  - ***Long-term standard for trend assessment.***
    - Along with GPS profiles.

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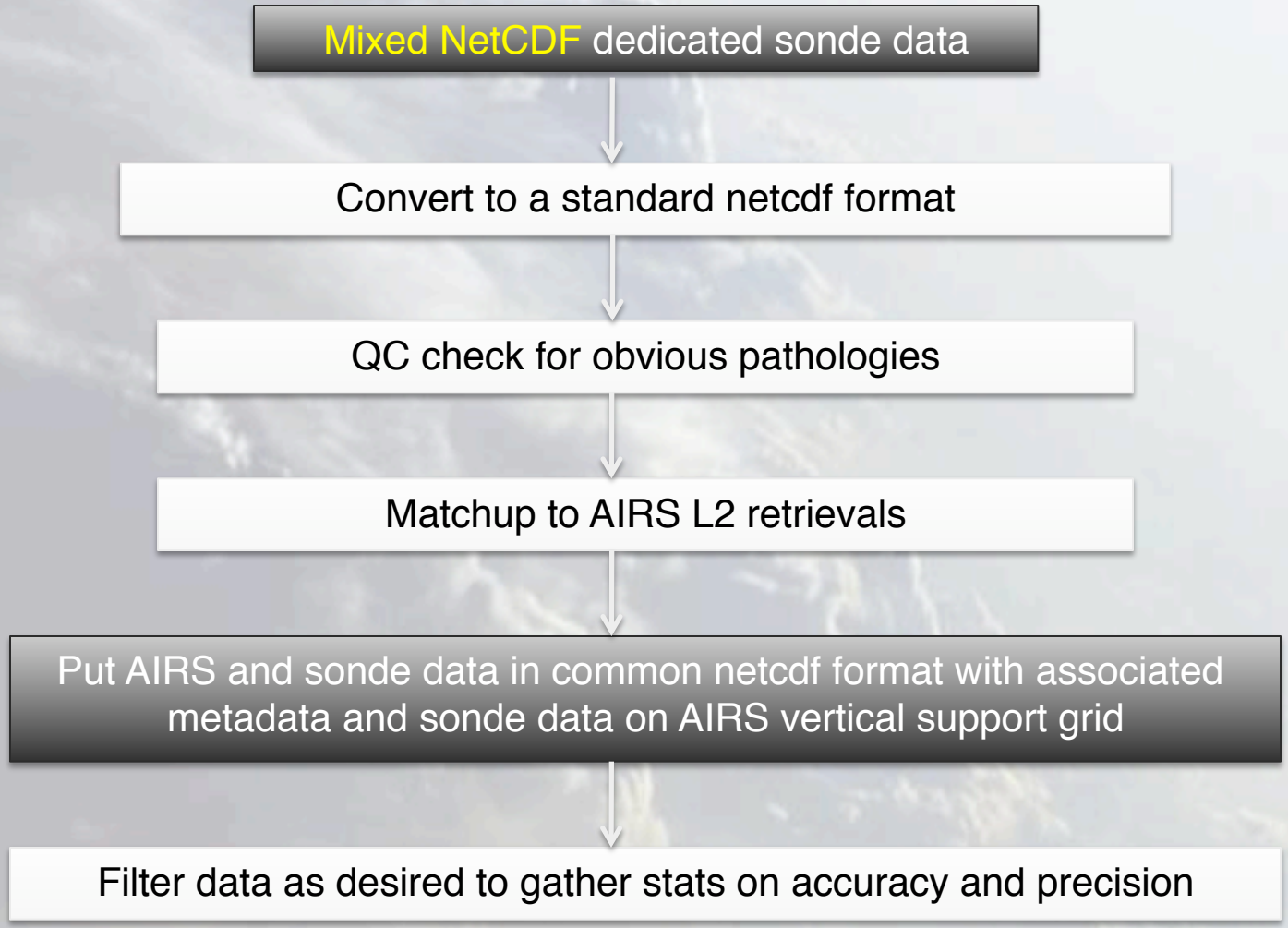
From Bill Irion's talk: Current work with dedicated sondes



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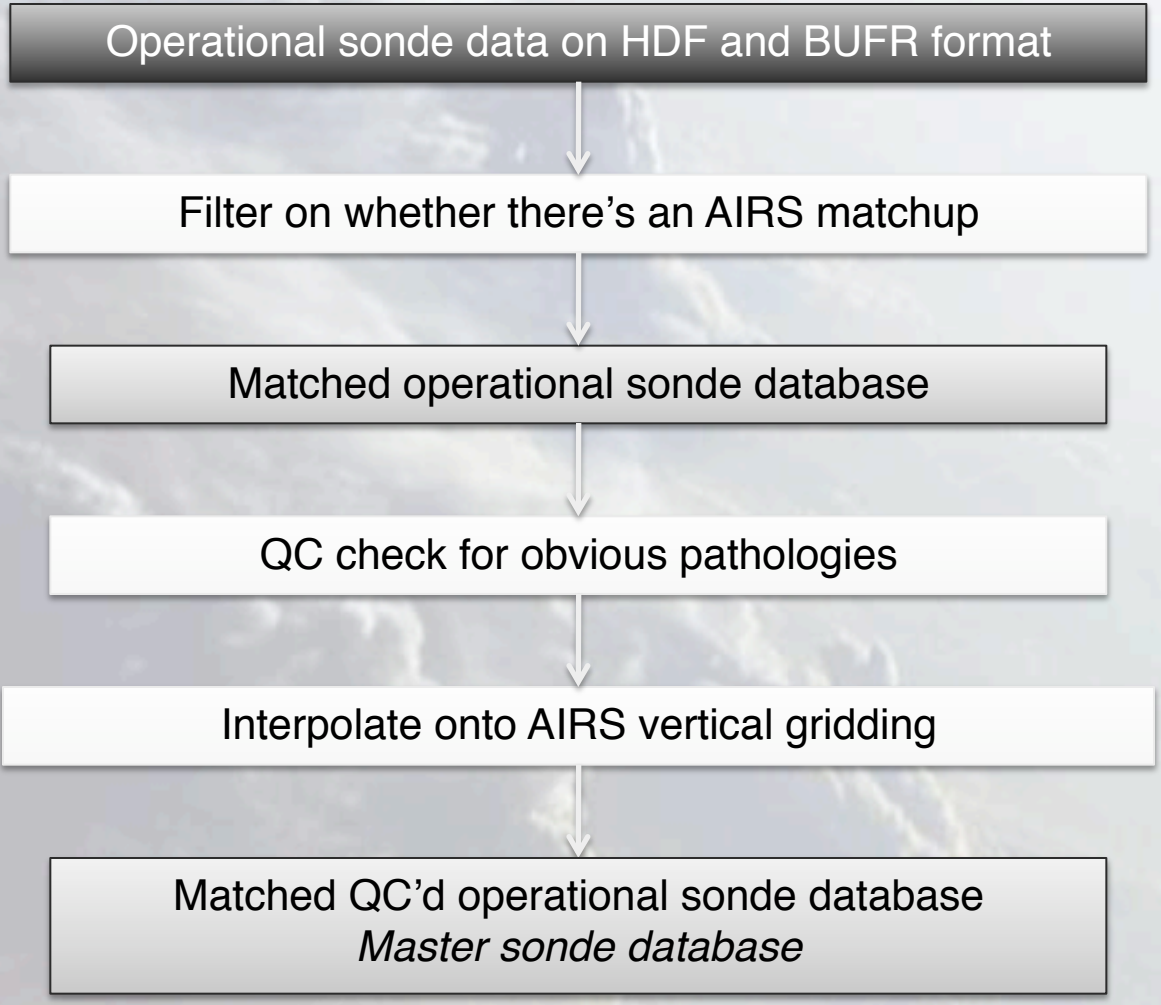
More from Bill Irion's talk: Work on operational sondes



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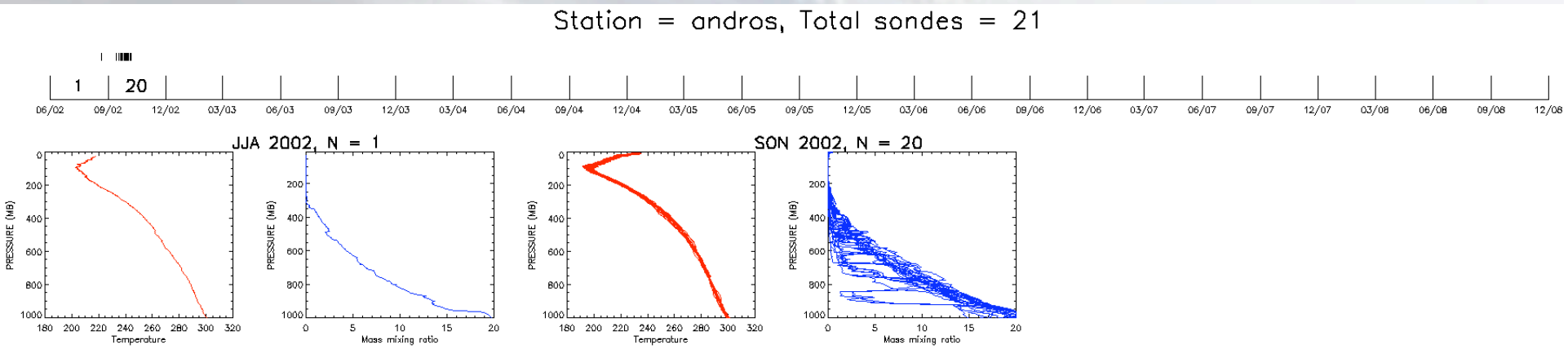
An Atlas of Dedicated Sondes
An example: Andros Island

Time series of soundings, and plots by season



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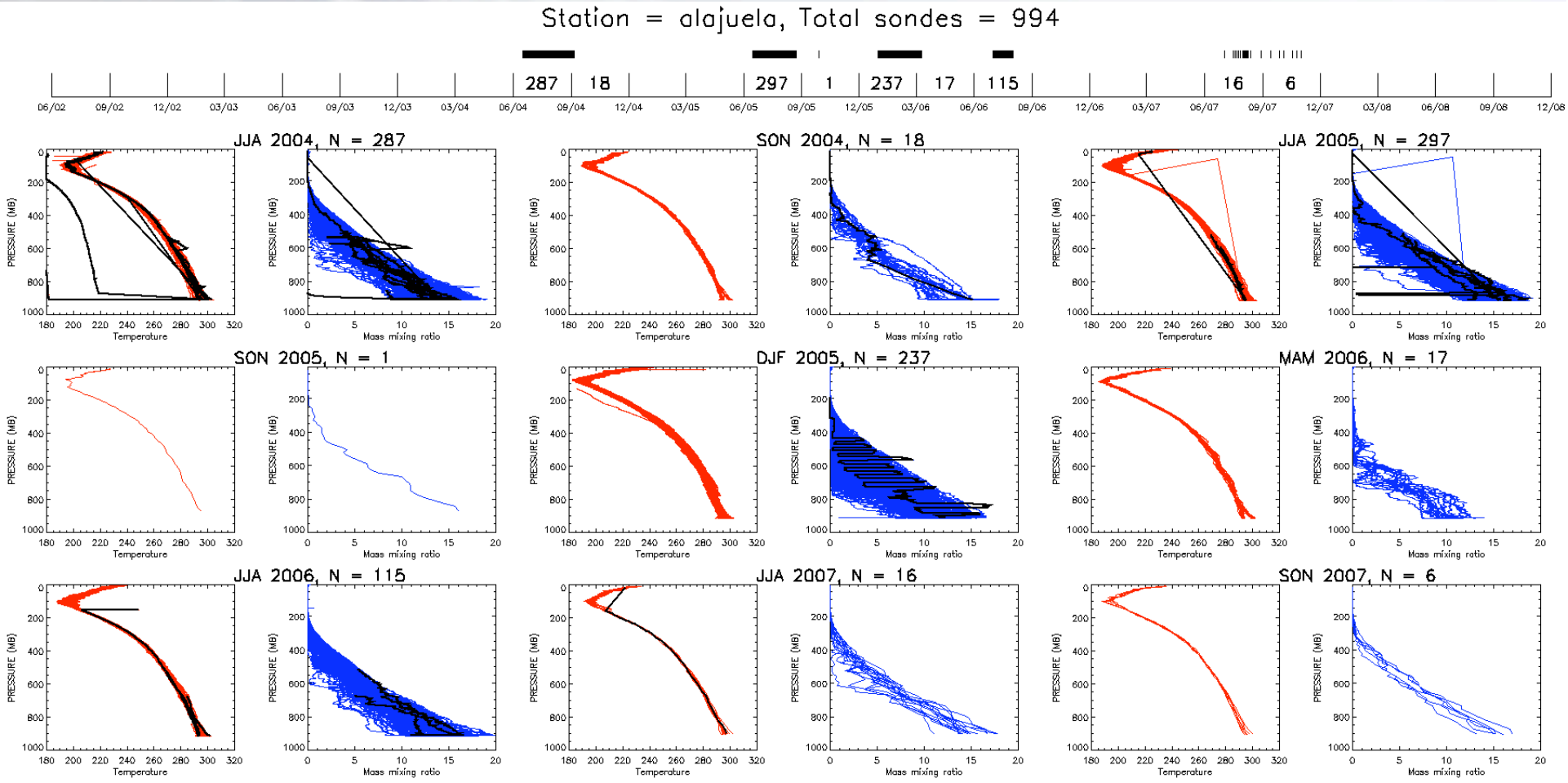
An Atlas of Dedicated Sondes another example: Alajuela, Costa Rica



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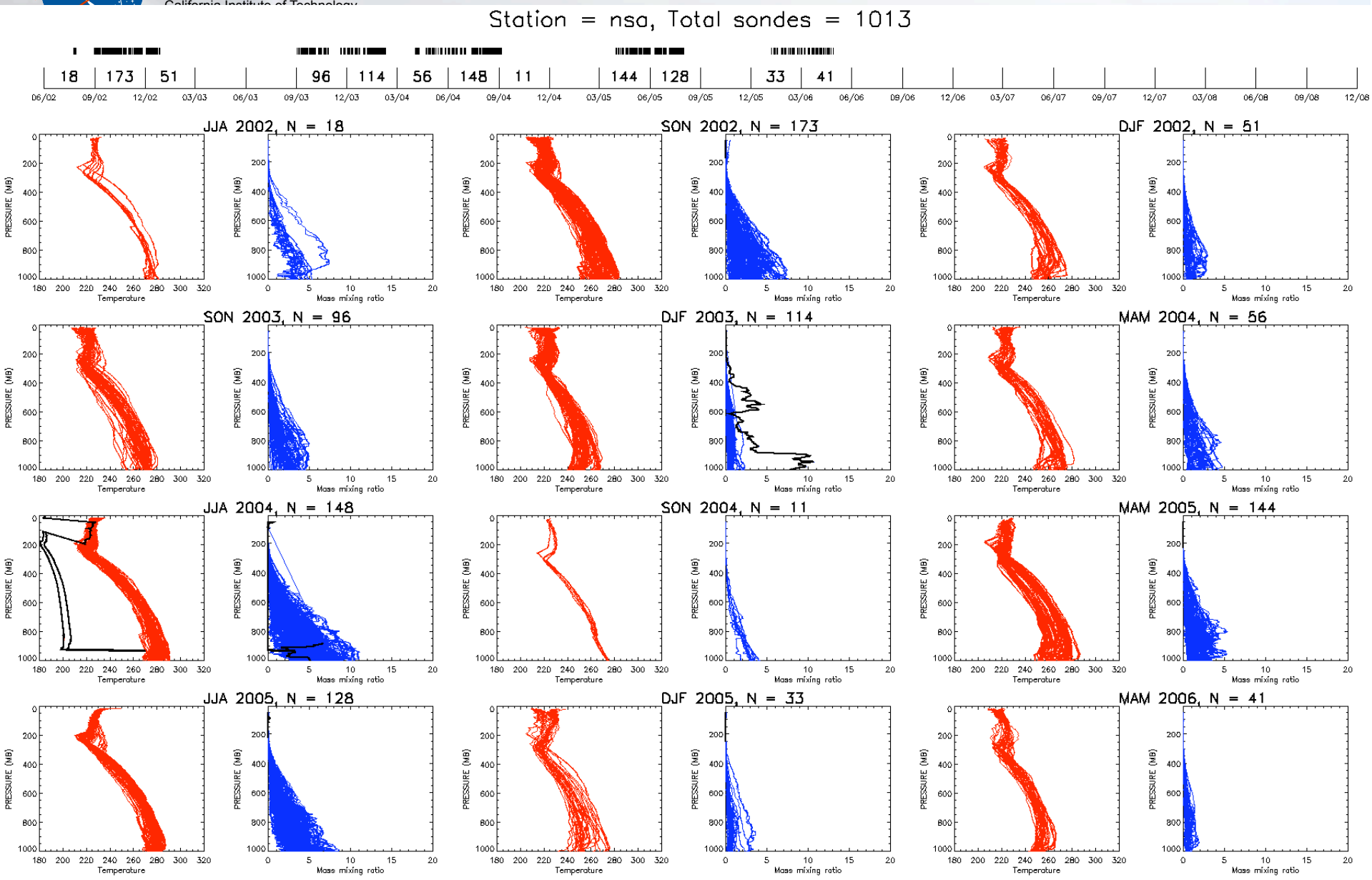
Another example: ARM North Slope of Alaska



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What's Next?

- **An atlas of dedicated sondes.**
- **Compare V5 T and q profiles against sondes**
  - ***See Bill Irion's talk later.***
- **What can we say about long-term trends we don't already know from comparisons with ECMWF and/or operational sondes?**
- **V5 validation report.**